CLAIM AMENDMENTS

Claim 1 (Original)

An image-processing apparatus, in which a high-frequency component signal of an original image-signal, representing a plurality of pixels, is added to either said original image-signal or a lowest frequency image-signal of said original image-signal, in order to generate a processed image-signal, comprising:

a conversion-processing section to apply a conversion-processing to unsharp image-signals, generated from said original image-signal in respect to a plurality of frequency bands, so as to generate converted unsharp image-signals;

a differential processing section to generate differential image-signals obtained from differences between said unsharp image-signals and said converted unsharp image-signals; and

an addition-processing section to totally add said differential image-signals to generate said high-frequency component signal of said original image-signal.

Claim 2 (Original)

The image-processing apparatus of claim 1,

wherein said differential image-signals derive from either differences between said unsharp image-signals in an adjacent pair of said frequency-bands or differences between said original image-signal and said converted unsharp image-signals.

Claim 3 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing is to convert pixel values of said unsharp image-signals, based on a non-linear transform.

Claim 4 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing is determined by said original image-signal or said unsharp image-signals in said plurality of frequency-bands.

Claim 5 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing is determined by said original image-signal or said unsharp image-signals in adjacent pairs of frequency-bands.

Claim 6 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing varies depending on either one of pixel value of said unsharp image-signals employed for generating said differential image-signals or pixel values of said original image-signal.

Claim 7 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing varies depending on said unsharp image-signals.

Claim 8 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing is a suppression-processing for suppressing an averaging-processing for averaging image-signals.

Claim 9 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing varies depending on pixel values of said unsharp image-signals to be processed by said conversion-processing.

Claim 10 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing varies depending on pixel values of a unsharp image-signal at a lowest frequency-band.

Claim 11 (Original)

The image-processing apparatus of claim 1,

wherein said conversion-processing varies depending on pixel values of said original image-signal.

Claim 12 (Original)

The image-processing apparatus of claim 8,

wherein the lower a frequency-band in which said unsharp image-signals reside is, the greater a degree of suppressing said averaging-action for averaging said image-signals in said suppression-processing is.

Claim 13 (Original)

The image-processing apparatus of claim 8,

wherein the higher a frequency-band in which said unsharp image-signals reside is, the stronger a power of suppressing said averaging-action for averaging said image-signals in said suppression-processing is.

Claim 14 (Currently Amended)

An image-processing apparatus, in which a compensation-signal generated from a low-frequency component signal of an original image-signal, representing a plurality of pixels, is added to either said original image-signal or a lowest frequency image-signal of said original image-signal, in order to generate a processed image-signal, comprising:

a conversion-processing section to apply a conversion-processing to unsharp image-signals, generated from said original image-signal in respect to a plurality of frequency bands, so as to generate converted unsharp image-signals;

a differential processing section to generate differential image-signals obtained from differences between said unsharp image-signals and said converted unsharp image-signals; and

a compensation-signal calculating section to totally add said differential image-signals so as to generate a high-frequency component signal, and to calculate said compensation-signal by subtracting said low-frequency component signal ~~form~~ from a converted low-frequency component signal, which is derived from a difference between said high-frequency component signal and said original image-signal.

Claim 15 (Original)

The image-processing apparatus of claim 14,

wherein said differential image-signals are derived from either differences between said unsharp image-signals in adjacent pairs of said frequency-bands or differences between said original image-signal and said converted unsharp image-signals.

Claim 16 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing is to convert pixel values of said unsharp image-signals, based on a non-linear transform.

Claim 17 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing is determined by said original image-signal or said unsharp image-signals in said plurality of frequency-bands.

Claim 18 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing is determined by said original image-signal or said unsharp image-signals in an adjacent pair of frequency-bands.

Claim 19 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing varies depending on either one of pixel value of said unsharp image-signals employed for generating said differential image-signals or pixel values of said original image-signal.

Claim 20 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing varies depending on said unsharp image-signals.

Claim 21 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing is a suppression-processing for suppressing an averaging-processing for averaging image-signals.

Claim 22 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing varies depending on pixel values of said unsharp image-signals to be processed by said conversion-processing.

Claim 23 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing varies depending on pixel values of an unsharp image-signal at a lowest frequency-band.

Claim 24 (Original)

The image-processing apparatus of claim 14,

wherein said conversion-processing varies depending on pixel values of said original image-signal.

Claim 25 (Original)

The image-processing apparatus of claim 21,

wherein the lower a frequency-band in which said unsharp image-signals reside is, the greater a degree of suppressing said averaging-processing for averaging said image-signals in said suppression-processing is.

Claim 26 (Original)

The image-processing apparatus of claim 21,

wherein the higher a frequency-band in which said unsharp image-signals reside is, the stronger a power of suppressing said averaging-action for averaging said image-signals in said suppression-processing is.

Claim 27 (Original)

An image-processing apparatus, comprising:

an unsharp image-signal generating section to generate unsharp image-signals from an original image-signal in respect to a plurality of frequency-bands;

a differential processing section to generate differential image-signals from differences between said original image-signal and said unsharp image-signals, and to apply a conversion-processing to said differential image-signals so as to generate converted differential image-signals; and

an addition processing section to add said converted differential image-signals to said original image-signal or a lowest frequency image-signal to generate a processed image-signal; wherein said conversion-processing varies depending on pixel values of said unsharp image-signals.

Claim 28 (Original)

The image-processing apparatus of claim 27, further comprising:

a compensation-signal calculating section to generate a compensation-signal which is derived from a low-frequency component signal obtained by subtracting a total sum of said converted differential image-signals from said original image-signal;

wherein said addition processing section adds said compensation-signal, instead of said converted differential image-signals, to said original image-signal or said lowest frequency image-signal to generate said processed image-signal.

Claim 29 (Original)

The image-processing apparatus of claim 28,

wherein said differential image-signals derive from either differences between said unsharp image-signals in adjacent pairs of said frequency-bands or differences between said original image-signal and said unsharp image-signals.

Claim 30 (Original)

The image-processing apparatus of claim 28,

wherein said differential image-signals on which said conversion-processing depends are either anyone of image-signals utilized for obtaining said differential image-signals or both of them.

Claim 31 (Original)

The image-processing apparatus of claim 28,

wherein said conversion-processing applied to said differential image-signals varies depending on said differential image-signals.

Claim 32 (Original)

The image-processing apparatus of claim 28,

wherein said conversion-processing applied to said differential image-signals is a suppression-processing for suppressing an absolute pixel value at least at a part of image-signals.

Claim 33 (Original)

The image-processing apparatus of claim 32,

wherein the lower a frequency-band in which said differential image-signals reside is, the stronger a power of suppressing said absolute pixel value of said image-signals in said suppression-processing is.

Claim 34 (Original)

The image-processing apparatus of claim 32,

wherein the higher a frequency-band in which said differential image-signals reside is, the stronger a power of suppressing said absolute pixel value of said image-signals in said suppression-processing is.

Claim 35 (Original)

The image-processing apparatus of claim 28,

wherein a conversion-function is determined by designating a frequency characteristic, so as to realize a given frequency characteristic, and processing are conducted on the basis of said conversion-function.

Claim 36 (Original)

The image-processing apparatus of claim 35,

wherein said frequency characteristic can be changed depending on density.

Claim 37 (Original)

The image-processing apparatus of claim 35,

wherein said frequency characteristic can be changed depending on density of either said original image-signal or said unsharp image-signals for every differential image-signal.

Claim 38 (Original)

The image-processing apparatus of claim 35,

wherein sets of parameters for processing said frequency characteristic are provided in said image-processing apparatus, a kind of processing can be designated by selecting one set out of said sets of parameters.

Claim 39 (Currently Amended)

An image-processing apparatus, comprising:

a filter-processing section to apply a mask-processing to an original image-signal, representing a plurality of pixels, with a mask so as to generate filtered original image-signals;

an unsharp image-signal generating section to generate unsharp image-signals from said filtered original image-signals;

a differential processing section to generate differential image-signals from differences between said original image-signal and said unsharp image-signals, or from differences between said unsharp image-signals themselves; and

an addition processing section to add said differential image-signals to said original image-signal or a lowest frequency image-signal with respect to said original image-signal in order to generate a processed image-signal;

wherein a frequency characteristic of said processed image-signal can be varied by changing a frequency characteristic of said mask employed for said mask-processing, and

wherein said mask-processing is repetitions of filter-processing with a simple average filter.

Claim 40 (Original)

The image-processing apparatus of claim 39, further comprising:

a compensation-signal calculating section to generate a compensation-signal which is derived from a low-frequency component signal obtained by subtracting a total sum of said differential image-signals from said original image-signal;

wherein said addition processing section adds said compensation-signal, instead of said differential image-signals, to said original image-signal or said lowest frequency image-signal to generate said processed image-signal.

Claim 41 (Cancelled)

Claim 42 (Cancelled)

Claim 43 (Currently Amended)

The image-processing apparatus of ~~claim 41~~ claim 39,

wherein said mask employed for said repetitions of filter-processing is a simple average of 2 pixels × 2 pixels.

Claim 44 (Original)

The image-processing apparatus of claim 40,

wherein a number of said repetitions of filter-processing designates said frequency characteristic of said processed image-signal.

Claim 45 (Original)

The image-processing apparatus of claim 40,

wherein said frequency characteristic of said processed image-signal is specified by designating weight of said mask with variance values of a normal distribution, and a number of said repetitions of filter-processing, which is approximate to said variance values of said normal distribution, is calculated to process image-signals.

Claim 46 (Original)

The image-processing apparatus of claim 40,

wherein said mask-processing varies depending on said unsharp image-signals.

Claim 47 (Original)

The image-processing apparatus of claim 40,

wherein said mask-processing varies depending on said original image-signal.

Claim 48 (Original)

The image-processing apparatus of claim 40,

wherein said mask-processing varies depending on a frequency characteristic of said original image-signal.

Claims 49-72 (Cancelled)

Claim 73 (Currently Amended)

An image-processing apparatus, comprising:

an unsharp image-signal generating section to generate a plurality of unsharp image-signals from a original image-signal, representing a plurality of pixels;

a differential processing section to generate differential image-signals from said unsharp image-signals or said original image-signal; and

an addition processing section to add said differential image-signals to said original image-signal or a lowest frequency image-signal with respect to said original image-signal in order to generate a processed image-signal;

wherein repetitions of filter-processing with a ~~specific~~ simple average filter are conducted for generating each of said unsharp image-signals.

Claim 74 (Original)

The image-processing apparatus of claim 73, further comprising:

a compensation-signal calculating section to generate a compensation-signal which is derived from a low-frequency component signal obtained by subtracting a total sum of said differential image-signals from said original image-signal;

wherein said addition processing section adds said compensation-signal, instead of said differential image-signals, to said original image-signal or said lowest frequency image-signal to generate said processed image-signal.

Claim 75 (Cancelled)

Claim 76 (Original)

The image-processing apparatus of claim 73,

wherein a mask employed for said repetitions of filter-processing is a simple average of 2 pixels × 2 pixels.

Claim 77 (Original)

The image-processing apparatus of claim 73,

wherein a mask-processing varies depending on said unsharp image-signals.

Claim 78 (Original)

The image-processing apparatus of claim 73,

wherein a mask-processing varies depending on said original image-signal.

Claim 79 (Original)

The image-processing apparatus of claim 73,

wherein a mask-processing varies depending on a frequency characteristic of said original image-signal.

Claim 80 (Original)

The image-processing apparatus of claim 76,

wherein a number of repetitions of said single average of 2 pixels × 2 pixels is not less than 16.

Claim 81 (Original)

The image-processing apparatus of claim 76,

wherein a number of repetitions of said single average of 2 pixels × 2 pixels than 8.